

Deposit Figures 5, 6, 7 for **Deformation-controlled cation diffusion in tourmaline: A microanalytical study on trace-elements and boron isotopes** by Steffen H. Büttner and Simone A. Kasemann, Nov/Dec 2007. AM-07-033.



Moderately deformed				
Zone	UR	UC	DR	DC
Crystal	4/1	4/1	4/1	4/1
SiO ₂	35.83	35.17	35.72	35.19
Al ₂ O ₃	32.08	33.23	32.97	32.62
TiO ₂	0.61	0.68	0.59	0.65
FeO	8.98	10.72	9.04	9.69
MnO	0.06	0.07	0.07	0.09
MgO	5.71	4.09	5.67	5.11
CaO	0.46	0.23	0.38	0.24
Na ₂ O	2.26	2.08	2.26	2.33
K ₂ O	0.05	0.04	0.04	0.04
F	0.11	0.11	0.08	0.07
Total	86.14	86.42	86.81	86.04
X _{Mg}	0.53	0.40	0.53	0.54
X _{Ca}	0.10	0.06	0.08	0.05

Figure 5. Photomicrographs of crystal 4/1 (left: plane-polarized light; right: cross-polarized light) and average major-element compositions (excluding B and volatiles) of deformed and undeformed zones. Major-element compositions of all other investigated crystals can be found in Büttner (2005).

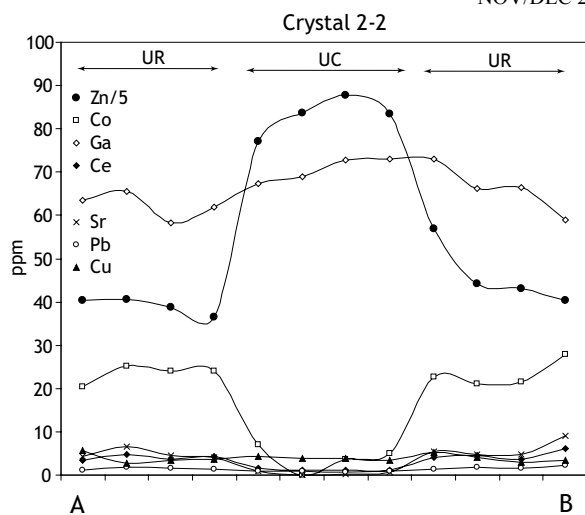
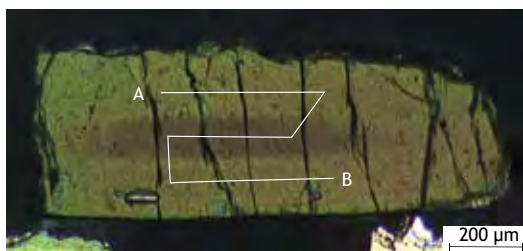
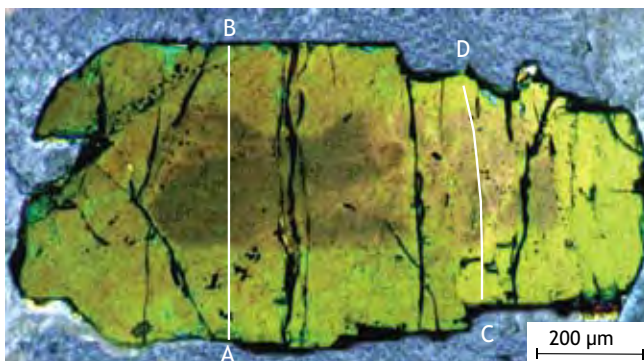
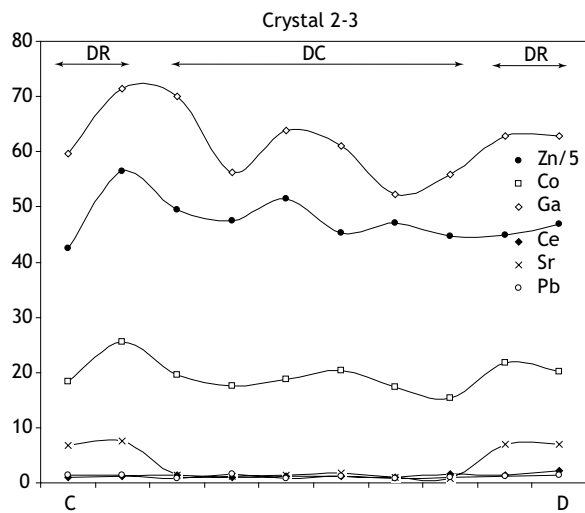
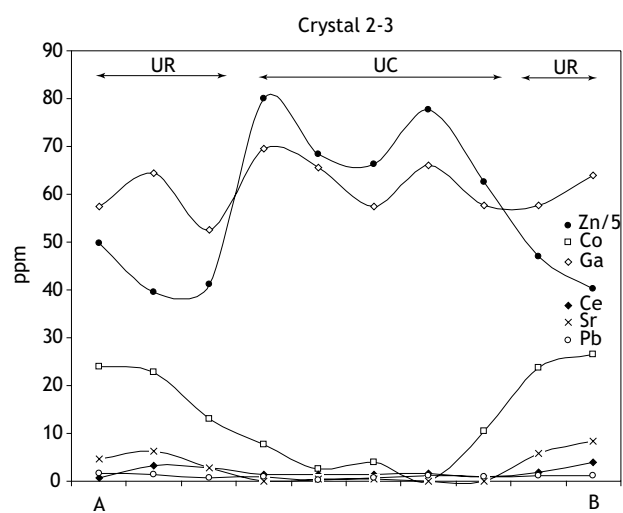


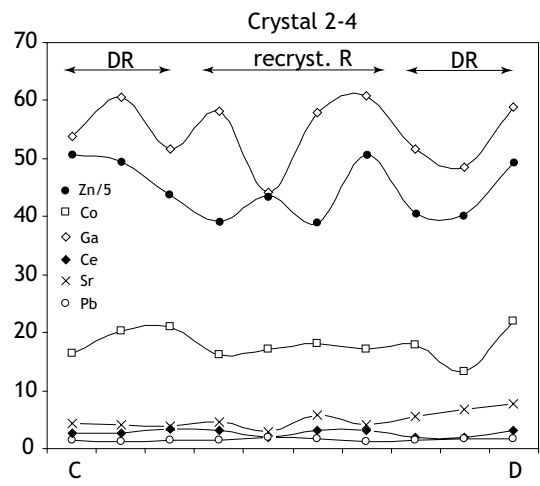
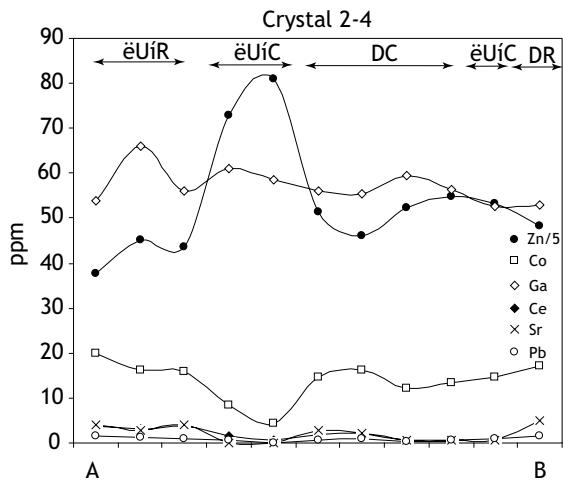
Figure 6. Trace-element zonation profiles of (a) the undeformed crystal 2/2, (b) the moderately deformed crystal 2/3 and (c) the strongly deformed crystal 2/4.



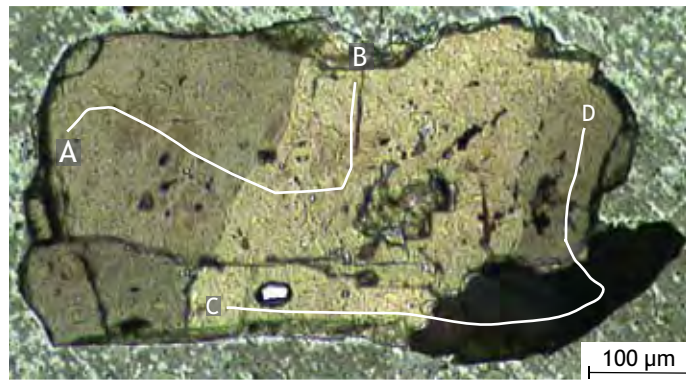
a



b



C



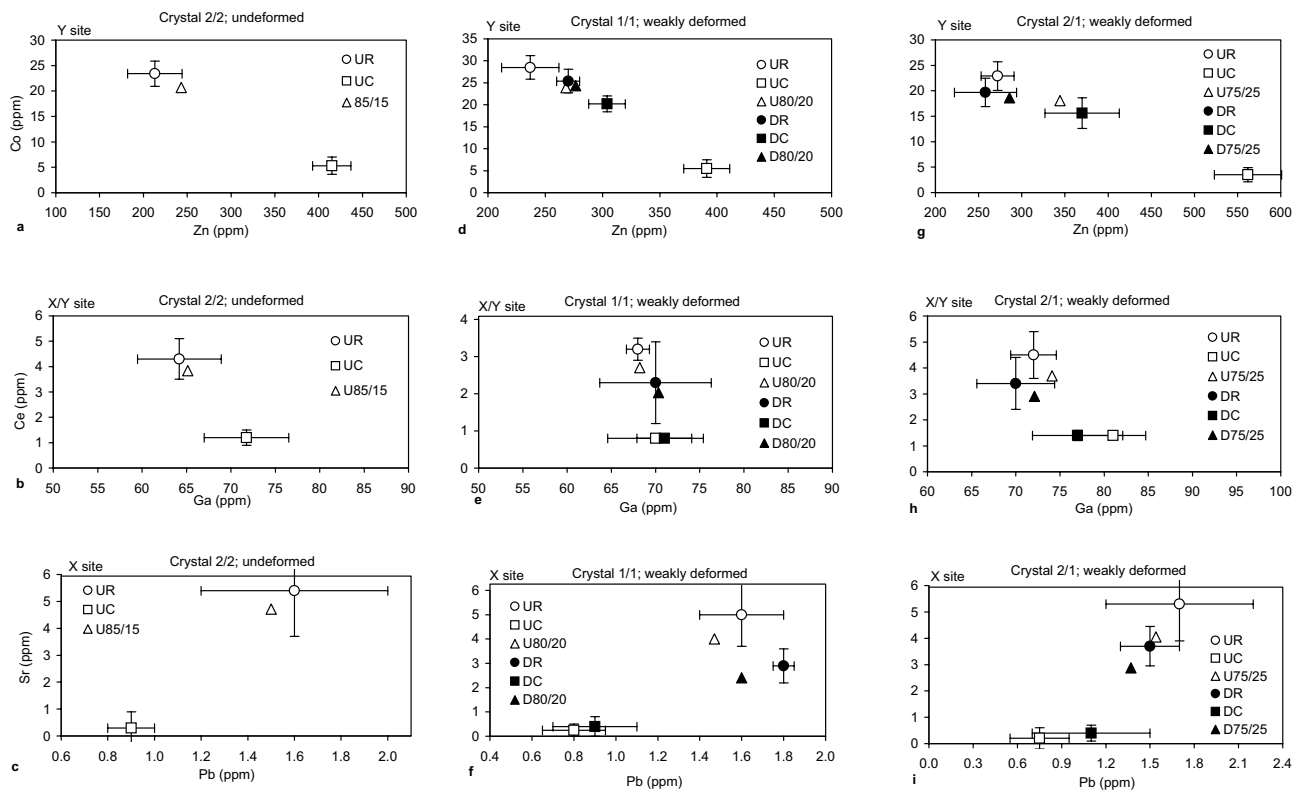


Figure 7. Trace-element zonation and variations in bulk element concentrations. White or gray symbols show the compositions of the undeformed or less deformed domain, black symbols show the compositions of the deformed domain. Bulk concentrations (triangles) of the undeformed and deformed crystal domains (e.g., U80/20, D80/20) were calculated according to the relative volume proportion and the average composition of the respective tourmaline zones (Table 2). Different positions of white and black triangles within an individual graph indicate a change in the bulk composition and hence, cation exchange with the matrix. Each data point is the average of four to nine LA-ICPMS analyses. Vertical and horizontal bars indicate the Δ value, not analytical error.

